

REMARKS

Applicants have the following response to the Office Action of August 15, 2005. Except as discussed below, Applicants are amending the claims to correct formatting and grammatical errors therein. These amendments are not in response to a patentability rejection and do not change the scope of the claims.

Applicants will now address each of the Examiner's rejections in the order in which they appear in the Office Action.

Claim Rejections - 35 USC §103

In the Office Action, the Examiner rejects Claims 9-22 under 35 USC §103(a) as being unpatentable over Watanabe '343 (US 6,877,343) or '465 (US 6,277,465). This rejection is respectfully traversed.

More specifically, with regard to independent Claims 9 and 10, in the method disclosed in Watanabe '343 and Watanabe '465, the chemically reinforced substrate is quickly cooled, and thereafter, the cooled glass substrate is dipped in sulfuric acid and washed in the condition that a supersonic wave is applied. See e.g. col. 5, particularly, lns. 60-65 in Watanabe '343.

In contrast, the method of independent Claims 9 and 10 of the present application includes the step of treating the surface of the glass substrate drawn up from the chemical reinforcing treatment liquid with a treatment liquid containing silicofluoric acid. As the Examiner admits, this is not disclosed in the cited references. This step is advantageous as it suppresses surface roughness scattering, and as a result, it is possible to accurately control an offset bearing area value (OBA%).

In contrast, as described on page 34, ln. 8 to page 35, ln. 18 of the present application, if sulfuric acid is used as a treatment liquid after the chemical reinforcing treatment, the surface

roughness scattering is not suppressed, and the offset bearing area (OBA%) is not accurately controlled. This advantage is not taught in the cited references. Hence, the use of silicofluoric acid, instead of sulfuric acid, is advantageous and would not have been obvious in view of the teachings in Watanabe '343 or Watanabe '465.

In order to make this clear and to advance the prosecution of this application, Applicants have amended independent Claims 9 and 10 to recite treating the surface of the glass substrate drawn up from the chemical reinforcing treatment liquid with a treatment liquid containing silicofluoric acid to control an offset bearing area value to a desired value. As this feature is not shown or suggested by Watanabe '343 or Watanabe '465, it is respectfully submitted that independent Claims 9 and 10 and those claims dependent thereon are patentable over the cited references.

The Examiner also contends with regard to dependent Claim 12 that it would have been obvious to optimize a concentration of silicofluoric acid. Applicants respectfully disagree.

Claim 12 is dependent on Claims 9-11. As explained above, independent Claims 9 and 10 recite treating the surface of the glass substrate drawn up from the chemical reinforcing treatment liquid with a treatment liquid containing silicofluoric acid to control an offset bearing area value to a desired value. Particularly, when the concentration of the silicofluoric acid is in a range of 0.01 to 10 wt%, the surface roughness scattering is more reliably suppressed, and thus it is possible to more accurately control an offset bearing area value (OBA%).

As described on page 23, ln. 26 to page 24, ln. 6 of the present application, when the concentration is less than 0.01 wt%, the process is less reliable since the abnormal protrusion, as the cause of AFM measurement scattering, unfavorably fails to be securely removed in some cases. Further, when the concentration exceeds 10 wt%, the glass substrate surface is etched, the surface state of the substrate surface formed by chemical treatment before the chemical

reinforcing treatment changes, and the surface roughness unfavorably increases. Therefore, the inventors of the present application discovered that the ranges recited in Claim 12 are advantageous. This is not mere optimization but inventive activity. Hence, the features of Claim 12 are not disclosed or suggested by the cited references, and Claim 12 is also patentable thereover.

With regard to Claims 14-22, the Examiner also contends that these claims are obvious. However, Watanabe '343 and Watanabe '465 teach that the surface roughness of the principal surface of the glass substrate is specified by $R_{\max} \leq 15$ nm. Neither reference discloses or suggests the specific management technique of Claims 14-22. Hence, these claims are also patentable over the cited references.

Accordingly, for at least the above-stated reasons, it is respectfully requested that this rejection be withdrawn.

Claim Rejections - 35 USC §112

The Examiner also appears to have a rejection under 35 USC §112, second paragraph. This rejection is also respectfully traversed.

In the rejection, the Examiner states that “[a] broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired.” The Examiner further states that “[i]n the present instance, claim 11 recites the broad recitation of chemicals used for the treatment liquid, and claim 10 recites only sulfuric acid which is the narrower statement of the range/limitation.”

While this rejection is traversed, in order to clarify the claimed invention, Applicants have amended Claim 11 to recite chemical treatment performed before the step of chemically

reinforcing the glass substrate comprises treatment with the treatment liquid containing at least one acid selected from the group consisting of sulfuric acid, phosphoric acid, nitric acid, hydrofluoric acid, and silicofluoric acid, or alkali.

It is respectfully submitted that this amendment overcomes the Examiner's objection, and it is requested that this rejection be withdrawn.

Conclusion


It is respectfully submitted that the present application is in a condition for allowance and should be allowed.

If any additional fee is due for this amendment, please charge our deposit account 50/1039.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,

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